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AN INVESTIGATION OF ORAL AND SILENT READING
WITH LOW AND HIGH ACHIEVERS

by



MILLICENT DELPHINE BRAKE

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE
OF MASTER OF EDUCATION

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THE UNIVERSITY OF ALBERTA
FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled An Investigation of Oral and Silent Reading with Low and High Achievers submitted by Millicent Delphine Brake in partial fulfilment of the requirements for the degree of Master of Education.

DEDICATED TO MY MOTHER AND
IN MEMORY OF MY FATHER

ABSTRACT

The purpose of this study was to investigate the nature of comprehension of high and low achievers when they read orally as compared with when they read silently. Comprehension was measured using recall protocols to help determine the processes used as well as the level of material which readers could comprehend when they read orally and silently.

For this study 40 grade two children were selected from a population of 228 students from six schools. Students were selected and grouped on the basis of performance on the Canadian Cognitive Abilities Test (1970) Primary 2, Form 1 and the Gates-MacGinitie Reading Tests, Canadian Edition (1978) Level B, Form 1. Students formed two equal groups with equal numbers of males and females in each group—a high achievement group and a low achievement group.

Students were required to read passages from the Standard Reading Inventory (McCracken, 1966) orally and silently until an instructional reading level was established. Following the reading of each passage, the student was required to recall as much of the story as possible and answer questions to assess comprehension of ideas not included in the recalls. Students' responses were tape-recorded and later transcribed. Recalls were divided into basic and alternate t-units (Fagan, 1978) and then each basic structure or unit was further categorized using Fagan's (Note 3) adaptation of Drum and Lantoff's (1977) system for analyzing unaided recalls.

The statistical analysis of the data included one-way analysis of variance for independent means and two-way analysis of variance

with repeated measures for dependent means.

Findings indicated significant differences in instructional reading levels obtained by high and low reading achievement groups on both oral and silent reading passages with high achievers performing better than low achievers. The mode of reading significantly affected the performance of both groups with both high and low achievers performing at a higher instructional reading level on silently read passages. Significant interaction effects indicated that greater differences in performance on oral and silent reading passages were evident for the high achievers as compared to low achievers. There were no significant differences between the high and low achievement groups in the type of information produced in the recall categories. As well, there were no significant interaction effects between reading achievement groups and modes of reading with respect to the nature of information recalled. However, there were significant differences between oral and silent reading on text specific and text erroneous recall categories. No significant differences were found for the other recall categories: text entailed, text experiential, and text external.

It was concluded that both high and low achievers are able to comprehend more difficult material when reading silently as compared to orally. In addition, it was concluded that when students are presented with reading material at instructional reading level, the mode of reading appears to have a more significant impact on the nature of information recalled from passages than does the level of reading proficiency. Implications for classroom and resource room teachers, and clinicians were included, as well as suggestions for further research.

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CHAPTER 1

THE PROBLEM

Most prominent researchers and theorists in the area of reading view reading as a meaning-getting process (Smith, 1963; Goodman, 1972; Smith, 1975). Smith (1977) advocates that "Comprehension is the very heart of the reading act. There is no use in reading unless one understands the meanings . . ." (p. 38). Many skills have been postulated as necessary for comprehension and a taxonomy of skills has been developed by Smith and Barrett (1974). They have identified literal recognition or recall, inference, evaluation, and appreciation as important subskills involved in the comprehension process. Jenkinson (1973) indicates that construction, interpretation, and evaluation of meaning are crucial abilities needed by readers in order to comprehend. Factor analytic studies into reading comprehension identify two common factors of comprehension. One is the understanding of what is explicitly stated by the author and the other is the understanding of information implied by the author which can be inferred by the reader (Davis, 1968). Research is only beginning, however, to elucidate the processes involved in reconstructing meaning from print.

Although comprehension, and silent reading comprehension in particular, is seen as the ultimate goal of teaching children how to read (Smith, 1973; Goodman, 1972; Smith, 1978; Durkin, 1978), there has traditionally been a heavy emphasis on oral reading in the primary

grades (Karlin, 1971; Durkin, 1978; Ransom, 1978; Farr and Roser, 1979). This has occurred at least partially because listening to a child read orally appears to be the only means of assessing the skills and strategies used by the child in the reading process. Another contributing factor appears to be widespread use of basal readers. In a survey of the use of basal readers, Austin and Morrison (1963) reported that over 94% of primary teachers and over 90% of intermediate grade teachers used basal readers as the main approach to teaching reading. Browne (1971) conducted a study in which she observed the verbal interaction in primary reading groups using basal readers. She concluded that more class time was taken up with oral reading responses in low groups rather than in high groups. In a follow-up study, Yake (1973) suggested "that oral reading may be perceived by teachers as a teaching technique, suited to the less able or beginning reader . . . [Thus] the use of silent reading response may depend upon the teacher and her [his] repertoire of reading teaching techniques" (pp. 132-133). Heavy reliance on oral reading for problem readers has also been encouraged by many materials specifically designed for remedial use such as Corrective Reading by SRA.

As early as 1910 Huey began to question heavy reliance on oral reading as the mode of instruction. He stated that although "we know that the reading of life is almost exclusively silent reading . . . we are instructed almost exclusively in reading aloud . . ." (p. 10). Wheeler in 1959 made the following comments:

Creating a desire to read and establishing good reading habits calls for both oral and silent reading . . . but neither oral nor silent reading should be taught to the exclusion of the other. The question is, how much oral reading and how much

silent reading? Even the reading experts would like to know the answer to this one. (p. 8)

More recently Ransom (1978) has indicated that although the establishment of good reading habits originates with oral experiences (p. 326), the 'round robin' oral reading approach, still used and advocated by many teacher guides, does not facilitate comprehension. Arguments have been advanced by Smith, Goodman, and Meredith (1976) against oral reading as a part of reading instruction. These authors indicate that:

1. [Oral reading] is slower than silent reading and may cause children to develop into slow readers.
2. Oral reading has limited social utility. Most adults seldom find it necessary to read aloud.
3. Studies have shown that children tend to comprehend better when they read silently than when they read orally.
4. Oral reading in round-robin style with each child reading in turn while others follow in their own books is dull and tedious. (p. 295)

In relation to the diagnostic value of oral reading, Ammon (1974) has questioned whether the practice of having children read aloud in order to evaluate comprehension is necessarily consistent with the basic purpose of reading—to gain meaning from the printed page. He has argued that comprehension can be evaluated just as effectively by having children read silently and then report in their own words the meaning of the text.

Theoretically, it has been postulated that there is little difference between the processes involved in oral and silent reading at the beginning stage of learning to read (Goodman, 1970; Smith, 1978). There is little research evidence to support this contention, however, or to demonstrate that practice in one mode of reading will lead to

proficiency in the other. Since the ultimate goal of reading instruction is silent reading comprehension, it is important to compare processes employed during oral and silent reading, particularly for poor readers who often receive a heavier emphasis on oral reading instruction than do good readers.

Purpose of the Study

The major purpose of this study was to investigate the nature of comprehension of high and low achievers when they read orally as compared with when they read silently. To accomplish this purpose, comprehension was measured using recall protocols to help determine the processes used as well as the level of material which readers comprehend when they read orally and silently.

Definition of Terms

The following definitions were used in this study:

Reading Comprehension

A complex of processes involved in bringing meaning to the printed page and interacting with that written message in order to communicate with the author (McLeod, 1978).

Unaided Recall

The verbal recall or retelling of everything that the subject can remember about a story after it has been read.

Recall Protocol

The verbatim record of the oral language output in the unaided recall testing situation.

High Reading Achievement Group

Those subjects in grade two who achieved at or above the 70th percentile on the Gates-MacGinitie Reading Tests, Canadian Edition (1978) Level B, Form 1.

Low Reading Achievement Group

Those subjects in grade two who achieved at or below the 30th percentile on the Gates MacGinitie Reading Tests, Canadian Edition (1978) Level B, Form 1.

Mode of Reading

The mode of reading refers to either oral reading or silent reading of passages.

Instructional Reading Level

The reading level at which passages are neither too easy nor too hard and is the highest level at which subjects can profit from reading instruction. The criterion used for determining the instructional reading level was 70% comprehension of the passage read.

Hypotheses

In order to achieve the purposes set out in this study, the following null hypotheses were formulated and investigated.

Hypothesis 1

There will be no significant main effects or interaction of reading achievement groups and mode of reading on instructional reading level.

Hypothesis 2

There will be no significant main effects or interaction of reading achievement groups and modes of reading on the proportion of units which fall into each of the following recall categories:

- a. Text Specific
- b. Text Entailed
- c. Text Experiential
- d. Text Erroneous
- e. Text External.

Limitations of the Study

When considering the findings of the study, the following limitations should be observed:

1. Oral recalls do not provide direct access to the processes of comprehension and care must be taken to ensure accurate interpretation about comprehension from the data.
2. When students were giving oral recalls, verbal facility may have affected the results of the study. That is, some children may have understood the passages when reading silently and orally, but may have had difficulty translating them into the verbal mode.
3. In both the oral and silent reading comprehension situations subjects were asked to demonstrate comprehension through oral retelling. This may have produced a bias effect for the oral mode.
4. The subjects selected to participate in the study may have been in an unfamiliar reading situation. They may have been more familiar with the silent mode of reading as compared with the oral mode

of reading or conversely, the oral mode of reading may have been more familiar. As well, the requirement of an oral recall and the presence of the investigator's tape recorder may have affected the performance of the subjects during the testing sessions.

Significance of the Study

Since the focus of this study is on how low and high achievers comprehend when reading orally and silently, it will provide information about the processes used in oral and silent reading, and hence, will add to our theoretical knowledge of the reading process.

In addition the study will indicate whether or not good and poor readers differ in their ability to comprehend materials read orally as opposed to silently, and therefore, should have implications for classroom teachers, resource room teachers, and reading clinicians. These results will help evaluate the current practice of placing heavy emphasis on oral reading in the programs of problem readers. Furthermore, if through the research more can be learned about how children comprehend when reading orally and silently, specific modifications can be made in reading instruction and programs. The results of this study should also have implications for reading diagnosis. It should reveal whether or not measures of oral reading are appropriate for assessing reading comprehension, especially with low reading achievers, and should provide further evidence regarding the utility of unaided recall as a measure of silent reading comprehension.

Plan of Investigation

This investigation is reported according to the following plan:

Chapter 2 reviews related literature and research.

Chapter 3 explains the experimental design of the study.

Chapter 4 will provide an analysis and discussion of the results.

Chapter 5 will present a summary of the study, major findings and conclusions, implications for instruction, and suggestions for further research.

Chapter II

REVIEW OF THE LITERATURE

The main purpose of this study was to investigate the nature of reading comprehension of high and low achievers when they read orally and silently. This section will include initially a discussion of the theoretical basis upon which the study was founded and secondly, a review of research on oral and silent reading comprehension. The discussion of the research will be divided into three sections. Section one will review those studies pertaining to teacher-pupil verbal interaction during reading instruction. Section two will provide a comparison of the reading comprehension processes in good and poor comprehenders. Section three will review studies which have compared performance on oral and silent reading.

Theoretical Base of the Study

Goodman (1968, 1970) and Smith (1973, 1978) have emphasized differences between the beginning/young reader and the mature/accomplished reader. They advocate that a mature reader processes written information (the printed word) quite differently from a beginning reader. Smith (1971) writes that "the beginning reader has to acquire special skills that will be of very little use to him once he develops reading fluency" (p. 3). Figure 2.1 illustrates Smith's (1978, p. 152) view of the reading comprehension process. The beginning reader identifies both words and letters from the

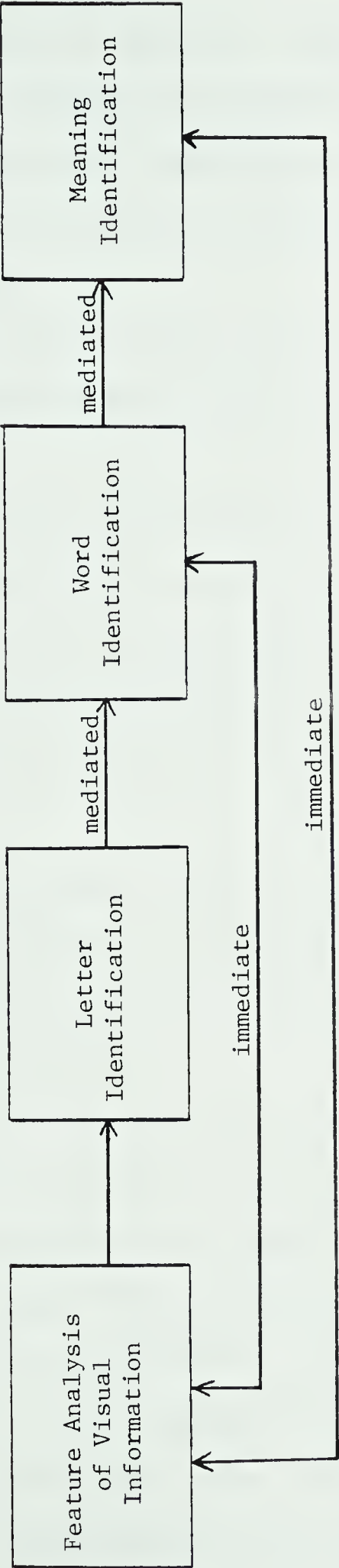


Figure 2.1
Smith's Model of Comprehension

distinctive features of the print. Individual letters do not have to be identified if immediate word identification is accomplished.

However, if an individual word cannot be recognized immediately, the reader may identify the word by employing mediated strategies. These strategies include:

1. Skipping or passing over a word because it is not necessary to understand every word in order to understand a passage of text.
 2. Guessing or predicting what the word may be by making use of the surrounding contextual cues in order to reduce unlikely alternatives for what the unfamiliar word might be.
 3. Identifying the word by analogy in an attempt to compare the unknown word with all or parts of words that are already known.
 4. Using phonics to identify unknown words. The reader applies his/her knowledge of phonics rules to enable him/her to predict how a written word will sound from the way it is spelled.
- (Smith, 1978, pp. 133-150)

While all the above mentioned strategies "will reduce some uncertainty, none is likely to eliminate all alternatives by itself. But used in conjunction, the strategies complement each other" (Smith, 1978, p. 148). Smith (1978) further asserted that just as immediate word identification is independent of the identification of individual letters, immediate meaning identification is independent of the identification of individual words. This assertion by Smith indicates that in reading text passages/stories, comprehension facilitates the

process of reading in two ways: (1) if immediate meaning identification of the text is accomplished by the reader, it makes unnecessary the prior identification of words; and (2) "comprehension of the passage as a whole facilitates the comprehension and, if necessary, identification of individual words" (p. 173).

One of the major differences between beginning and proficient readers according to Smith (1978) is that immediate meaning identification is accomplished by proficient readers most of the time whereas beginning readers generally are involved in a process of mediated comprehension.

Goodman (1965) and Smith (1978) have also hypothesized other differences between oral and silent reading. Silent reading is less precise than oral reading enabling the reader to concentrate on meaning rather than sound/word identification. In addition, silent reading is more efficient and faster than oral reading because the reader is not constrained by having to produce the words on the page.

In oral reading the reader attends to every word with careful consideration being given to correct pronunciation and enunciation. Oral reading further requires expression and appropriate volume if the listener is to understand what is being read. Contrary to oral reading, silent reading is not a precise word-by-word process. According to Goodman, the proficient silent reader scans the page of print, focuses on the line of print, and selects graphic cues from the print which will be most productive in order to form a perceptual image. Then having formed an image, the reader searches in memory for phonological, semantic, and syntactic information associated with

the image. Having obtained this information, the proficient reader makes tentative choices on the basis of minimal cues and related syntactic and semantic appropriateness. If the choice has failed to make sense, the proficient reader scans back over the material for further grapho-phonetic information. On the other hand, when an acceptable, successful choice has been made, the proficient reader integrates this information with the interpretation of a sentence or passage, which has been forming by the processes of assimilation or new meaning, accommodation of meaning or both (Goodman, 1970, pp. 29-32).

As Goodman (1970) advocates:

When silent reading becomes proficient, it becomes a very different process from oral reading. It is much more rapid and not tied to encoding what is being read as speech. In silent reading, the reader sweeps ahead sampling from the graphic input, predicting structures, leaping to quick conclusions about the meaning and only slowing down or regressing when subsequent sampling fails to confirm what he expects to find. (p. 19)

Once a reader has become more proficient, the process of oral reading becomes different than silent reading. For example, the proficient silent reader who is required to read aloud must first decode and then encode meaning as oral output (Goodman, 1968, pp. 19-20; Goodman, 1970, pp. 18-19). Because the reader must adjust the process of decoding meaning directly from the print (as in silent reading) to the process of first decoding meaning and then encoding meaning to provide an oral production (as in oral reading), she or he must do two things: (1) change the pace of reading and (2) change the mode of information processing to encode and decode simultaneously. Goodman (1968) concluded that "in the early stages, oral and silent reading are probably quite comparable as processes" (p. 18) but as

children develop proficiency in reading, the processes of oral and silent reading change.

Both Goodman (1968) and Smith (1978) focus on comprehension as the ultimate goal of reading. Unfortunately the process of comprehending is internal and as such, is not directly observable. Therefore, what cannot be observed cannot be measured directly; rather, the comprehension process must be inferred through either the process of oral reading or/and silent reading. Overt indicators (observable responses) such as a spoken or written answer to a question, or the retelling of a passage/story "give us clues about the internal state of the reader and the process in which he or she is engaged" (Page, 1980, p. 229). In this study, unaided recalls will be used to provide some indication of processes involved in oral and silent reading comprehension.

Teacher-Pupil Verbal Interaction during Reading Instruction

Classroom teaching studies have shown that the teacher, as a facilitator of learning, plays a direct role in determining the nature and level of reading comprehension learners will acquire. The teacher's choice of instructional materials, procedures, and strategies may affect reading comprehension either positively or negatively. Browne (1971) concluded that although teachers subscribe to a similar method of teaching reading, specifically, the basal reading approach, they emphasize different aspects of the program in their reading classes (p. 406). When groups of children were perceived by their teachers as good or poor comprehenders, it appeared

that reading comprehension tasks for the poor comprehenders were often neglected in favor of word recognition tasks. Browne suggested that "while the [basal reading] program usually emphasizes that there should be opportunities for pupils to acquire meaning in reading along with the acquisition of word perception skills, high and average reading groups seem to have a better balanced program compared to low reading groups" (p. 406). In addition, teachers tended to focus upon interpretative questioning with higher level reading groups and more literal questioning with lower level reading groups. Furthermore, Browne observed that teachers required more responses based upon oral reading of content materials in the lower reading groups and judged the correctness of the response in terms of how well the material was orally read, rather than on its relation to the question. Overall Browne concluded that instructional procedures for lower reading groups were based upon heavy usage of oral reading as the primary technique of attempting to teach reading comprehension. Aulls (1978) has suggested that when teachers ask primarily low level questions which require oral reading responses, they "may be doing very little to enhance students' reading comprehension growth" (p. 3).

Yake (1973) revealed that during the implementation of the Gage Language Experience Reading Program (a basalized language experience approach), comprehension solicitations were used frequently with all ability level groupings (p. 65). In Yake's study, primary teachers emphasized the meaning aspect of reading for their poor readers rather than a code-emphasis (word-identification) approach. In fact, Yake found that "low groups in both LER Classes 1 and 2 were

asked more Comprehension questions than Average groups . . ." (p. 66). Contradictory to Browne's findings, Yake's data did not provide any substantial evidence that word perception and oral reading were group-linked (p. 70). The educational implication of such contradictory findings regarding reading comprehension instruction suggests that the instructional decision to implement silent reading over oral reading and word identification may depend upon both the teacher and the nature of the reading series being used in the classroom.

Yake's findings did not totally refute those of Browne however. Yake concurred with Browne on a number of important points regarding comprehension instruction and teacher-pupil interaction, and these are summarized as follows:

1. Both Browne and Yake found that high ability groups recorded a higher proportion of comprehension solicitations, content responses, and confirmation reactions while the lower ability groups, on the other hand, recorded a higher proportion of oral reading responses, and corrective reactions in comparison with other groups.

2. Both Browne and Yake found that silent reading was used infrequently in the group teaching context whereas oral reading responses may have been utilized too excessively as a reading teaching technique in some groups.

Anderson (1978) examined teacher-pupil verbal interaction under natural conditions at the upper elementary level. The sample consisted of four grade-four classes each of which was divided into high, average, average-low, and low ability reading groups. Anderson reported that although there was less oral reading occurring in the

basal reading classes she observed than had been the case in the studies by Browne and Yake, this was not replaced with an increased emphasis on silent reading. In fact, in comparison to Yake's (1973) grade one study Anderson maintained that less silent reading was being practiced in these grade four classes during group instruction. She asserted that this may have been "due to teachers assigning silent reading outside group instruction" (p. 95). With regard to the silent reading that did occur, Anderson further reported that a larger proportion of silent reading tallies were recorded for the lower ability groups than for the higher ability groups. Furthermore, Anderson observed one class in which no oral reading was required of the low group and found that for this low group which required no oral reading, silent reading received a higher proportion of tallies in comparison to other groups. Three out of the four teachers in Anderson's study assessed comprehension by asking literal type questions in comparison to other higher level questioning (for example, predicting, reconstructing, and hypothesizing) with the average ability groups receiving the highest proportion of comprehension solicitations. "It would appear, therefore, that teachers [at the elementary level] are putting emphasis on comprehension questions . . . particularly with the Average groups" (p. 111).

Teachers' verbal behaviors following oral reading errors of primary grade children were examined by Allington (1980). Twenty teachers were selected on the basis of three criteria: willingness to participate; those who arranged reading instruction around reading ability groups; and those who indicated that oral reading was a common

feature of reading instructional sessions. Allington's findings "indicated that teachers are more likely to interrupt poor readers than good readers when oral-reading error occurs, regardless of the semantic appropriateness of the error" (p. 375). The data further showed that the most frequent interruption behavior for the high and low achievement group was for the teacher to simply pronounce the word for the reader. These findings seem to indicate that the incidence of interruptions may be an important factor in oral reading instruction. It may be that the nature of error correction behavior of primary teachers plays a role in reading instruction and varies according to the ability level of the reader.

Comparison of Reading Comprehension Processes in Good and Poor Comprehenders

In an attempt to contrast reading comprehension processes of good and poor comprehenders, Golinkoff (1976) reviewed pertinent studies in the area of reading comprehension. She organized the studies into three categories: (1) decoding, (2) lexical access (availability of individual word meanings after decoding has taken place) and (3) text organization (obtaining meaning from larger units of text other than single words). Based upon the results of various studies, she concluded that good and poor comprehenders differed primarily in decoding and text organization processes. According to her review of the literature, Golinkoff concluded that good comprehenders seemed to be more capable of rapid and accurate word recognition (decoding skills) in contrast to poorer comprehenders. She maintained that good comprehenders appeared to possess some awareness of reading

comprehension—what it is and when it has occurred. However unlike good comprehenders, poor comprehenders seemed less able to organize text and consequently, read text in a word-by-word manner. Thus, it appeared that good comprehenders viewed reading as a process through which meaning could be acquired as they interacted with the print while poor comprehenders viewed reading as a decoding task.

Oaken, Weiner and Cromer (1971) compared good and poor comprehenders under good auditory input, poor auditory input, good visual input and poor visual input conditions. The authors reported that under good auditory input, good and poor comprehenders performed equally well but good comprehenders performed better under good visual input than under good auditory input. It is possible that the good comprehenders performed better under visual input conditions because unlike auditory input conditions, visual input conditions allow readers to scan and rescan the material if they cannot understand it. Good comprehenders may also have developed more efficient and more effective strategies for processing visual than auditory information, and this may differentiate them from poor comprehenders.

Perfetti (1977) divided comprehension into three components: (1) a surface or phonological component, (2) a syntactic-semantic component, and (3) an interpretive-integrative component. He investigated differences in good and poor reading behavior on each component in an attempt to isolate factors which differentiate between good and poor comprehenders. Although Perfetti found that good comprehenders were faster decoders than poor comprehenders, he concluded that it was still unknown whether there are clearcut

distinctions between automatic and effortful decoding or whether there are degrees of conscious effort which may be required for decoding. Perfetti also found that the syntactic-semantic and the interpretive-integrative components of comprehension involve memory. He argued that skilled readers can hold strings of words in memory verbatim in both single and multi-clause sentences while non-skilled readers have the ability to remember only single clause sentences. Likewise, skilled readers can remember up to six words while reading a passage whereas the non-skilled reader can remember up to three words. Hence, Perfetti concluded that comprehension may be slowed down by either poor decoding or poor memory (such as in unavailability of just read sentences). If the poor reader cannot remember just read sentences, it makes it impossible for the poor reader to use the integrative-interpretive processes which would allow him/her to relate incoming information to information already received.

The effect of organization upon reading comprehension and memory for both spoken and written discourse has been closely examined by Berger and Perfetti (1977). On a paraphrase recall task, skilled readers performed better than less skilled readers. Similarly, skilled readers performed better on a verbatim comprehension task than less skilled readers. As well, Berger and Perfetti found that for the less skilled reader, prior knowledge accounted for the information gained rather than encoding ability when processing new information. In contrast, skilled readers gained significantly more information after passage presentation and it was not related to prior knowledge (p. 14). According to Berger and Perfetti, skilled

comprehenders appeared to actually be comprehending and learning more than less-skilled comprehenders. In essence, they stated that less skilled readers recalled the same type of information that skilled readers had but unlike the skilled readers, they recalled less of this information.

Drum and Lantoff (Note 1) claim that good readers are able to remember the gist of what they read in either a free recall situation or when asked to recognize isolated components from the text. The authors argue that memory for prose is neither a verbatim translation nor a picture image of the input. Instead, they point out that the gist of what readers remember is the product of selecting and rearranging elements within the text into a summary of text content. But the reader's prior knowledge, the structure of the text, and the reading ability of the reader determine how well readers rearrange and integrate selected text information. Drum and Lantoff analyzed immediate and delayed unaided recall protocols of sixteen eighth graders. They concluded from their findings that more able readers remembered more verbatim information (categorized as text specific), inferential information (categorized as text entailed), and information which had no relationship to the text (categorized as text external) than did the less able readers. Their findings also showed that the more able readers recalled less erroneous or confused information (categorized as text elicited) and also less general information (categorized as text evoked) in comparison to the less able readers.

McLeod (1978) investigated the role of inference in the

discourse reading comprehension of fourth grade readers by comparing 20 very proficient and 20 less proficient readers in their ability to draw inferences as they read.

The findings indicated that when asked to recall passages read silently, there were no significant differences between proficiency groups in terms of quantity or quality of inferences produced. However, data did show that both very proficient and less proficient readers generated more supported than non-supported inferences. On an oral reading task McLeod found no significant differences between the groups in terms of the quantity of inferences produced. In the generation of textually supported inferences, however, the very proficient readers were significantly superior to the less proficient readers on the oral reading task.

When McLeod asked specific inference questions he found significant differences in favor of the very proficient group. Further analysis on this task also indicated that very proficient readers generated more textually supported inferential responses. On the basis of these findings, McLeod concluded that very proficient readers were more aware of textual constraints than were the less proficient readers. Furthermore, the findings of McLeod's study lead him to conclude that confirmation strategies, rather than prediction strategies, distinguished the very proficient readers from the less proficient readers (p. 252).

Tierney, Bridge, and Cera (1979) compared good and poor readers' memory of text to the context and structure of the text. They found that both good and poor readers rendered more explicit

than inferred information in a free recall situation. As well, they found that good readers rendered significantly more explicit and inferred information than did poor readers during both free and probed recall situations. The differences in the recall of explicit information from a passage and the quantity of inferred information based upon the passage may be due to different processing operations occurring at the time of selection and reorganization of passage information. Tierney et al. allude to these processing differences as abstractive and constructive. They advocate that:

Abstractive processing involves selective processing, which seems prompted by the readers' attempts to (1) glean what might be considered relevant units from the text and (2) summarize the ideas in a meaningful form in accordance with what can be handled by the memory system.

The constructivist view of comprehension . . . holds that readers process the print data, using information from the text in association with their knowledge of knowledge to construct a meaningful interpretation. (pp. 552-554)

By studying the free recall behavior of proficient sixth grade readers, Furniss (1979) revealed that proficient readers in her study recalled more text evoked and text external information and less text specific and text entailed information. In addition, Furniss found that text external information, in particular, was an important part of proficient readers' recall of text. It can be hypothesized that external recall of information may be an important integrative strategy for readers in retrieving information for recall. This strategy would allow readers time to search their memory while intrinsically thinking about the textual information which would, in effect, enable them to interpret the author's message in a meaningful way.

Zinn (1979) compared high and low grade four readers on their use of the logical connective "because." She analyzed the recalls of these readers in an attempt to determine whether good and poor readers differed on the nature of comprehension produced in recalls when connectives were absent or present. Zinn's findings revealed that on both types of passages the high group produced more text specific information when connectives were absent. However, on the basis of her findings Zinn concluded that "the presence of connectives aided the low readers in producing text specific information" (p. 48) and when connectives were absent the low group produced more text evoked (erroneous) information. Zinn suggested that low readers relied more heavily on their background knowledge and that they were not highly constrained by the text when producing story recalls which had connectives removed from the text. In contrast, the high group were more constrained by the text when connectives were removed from the text. Consequently, it can be inferred that the ability to use background knowledge effectively and appropriately when recalling textual information may also differentiate between good and poor comprehenders.

In attempting to explain successful reading remediation at the University of Alberta Reading and Language Center, Malicky and Beebe (Note 2) compared the reading gains made by good and poor readers. They selected five high gain subjects whose instructional silent reading level had increased at least two grade levels as measured by the Standard Reading Inventory (McCracken, 1966), and five low gain subjects whose reading levels had remained constant or had risen only marginally. Two recall passages for each of the ten subjects were

analyzed; these were both unaided recalls on passages at the instructional reading level obtained in the pre-test/diagnostic session and in the post-test/final evaluative session. Malicky and Beebe's findings revealed that high gainers gave significantly more inferential information (text entailed and text elicited) in comparison to explicit information following remediation. The low gainers, in contrast, gave increasingly more erroneous and irrelevant information (text erroneous). The authors suggested that high gainers entered the remedial sessions with an advantage over the low gainers. That is, when high gainers came to the remedial reading situation, they were already able to associate the information with their background experiences more effectively than the low gainers, and continued to increase their ability to process print at higher reading levels. Furthermore, high gainers made greater use of connectives in their recalls and consistently produced more informational units than did low gainers.

This study attempts to focus on the processing and recall of information through two reading modes—oral and silent. Thus, this study will provide further knowledge into the discourse operations of good and poor comprehenders by examining oral and silent reading processes.

Comparison of Performance on Oral and Silent Reading

From the preceding sections one may conclude that good and poor readers differ in many ways. Section one reviewed those studies pertaining to teacher-pupil verbal interaction and on the basis of these studies, good readers may be differentiated from poor readers

in relation to the type of reading instruction provided by teachers. Section two compared the reading comprehension processes of good and poor readers and indicated that good and poor readers also differ in their ability to efficiently process information for an understanding of the print. The following section will be directed toward examining those studies which have compared good and poor readers' performance on oral and silent reading. In addition, this section will further examine differences between oral and silent reading rate.

Means (1969) scrutinized the relationship between reading comprehension and "the reader's use of the rhythms and melodies of normal speech in reading" (p. 4). Although Means did not deal specifically with the relationship between oral and silent reading comprehension in his study, he noted that the mean scores were higher for oral reading comprehension. He reported that 75% of the children in the sample obtained a higher score on oral reading comprehension in comparison to silent reading comprehension. Based upon his findings, Means suggested that oral and silent reading comprehension processes may be quite different processes, at least, at the fourth grade level.

Morris (1970) examined the performance of grade four students' oral and silent reading comprehension in the content areas (basal readers, social studies, and science). He found that "pupils' ability to comprehend materials read silently still lags behind their ability to comprehend materials orally" (p. 85). Morris concluded, then, that oral reading facility, oral reading comprehension, and silent reading comprehension are each distinctive processes of reading behavior. As such, Morris felt that there was little direct relationship between them.

The relationship between pausing while reading orally and oral and silent reading comprehension was investigated by Eagan (1973). She found that at the second and third grade level the number, length and placement of pauses did have a significant and positive relationship with silent reading comprehension but almost none with oral reading comprehension. Her data showed that there was "no relationship at all between oral reading comprehension scores and silent reading comprehension scores" (p. 209). Eagan felt that children who were above average in silent reading comprehension were hampered by having to read orally while less proficient readers seemed to find oral reading an aid to comprehension. She suggested that less proficient readers comprehend better when they read orally because they are able to listen to themselves as they read.

Matthews (1974) examined how fourth grade children evaluated oral reading when performing before a group. She reported that most of the subjects in her study liked reading before a group. However, those children who did not like reading orally before a group perceived themselves to be poor readers and feared making mistakes. When comparing oral reading to silent reading, all the subjects in Matthews' study preferred to read silently. The children in her study explained that they liked reading silently more than reading orally because they found it easier to concentrate and they felt that they read better silently.

Studies of eye movements in oral and silent reading have shown further differences between oral and silent reading. Because it is necessary to pronounce and enunciate each word on the page in oral

reading, the eye spends more time in scanning the material. This causes a conflict and the voice wins as the eye unconsciously yields to the slower pace. While in the process of accommodating the voice, the eye which is still active, wanders and regresses. These regressions "operate to reduce the separation between the eyes and the voice (Anderson and Dearborn, 1952, p. 125). As a result the eye fixates longer in oral reading than it would if the reading was done silently. However, on the basis of their data, Buswell (1922), Betts (1936), and Gilbert (1940) pointed out that as proficiency in silent reading develops, fixations and regressions decrease in number. Gilbert, in particular, found that the eye movements of silent readers who were following oral reading showed more fixations and regressions than when silent reading was done independently. As a result of his findings, Gilbert condemned "the routine practice of requiring silent readers to follow the oral reading of poor and mediocre readers" (p. 621).

In terms of rate of reading there also appear to be differences between oral and silent reading. Smith (1973) advocates that reading quickly is easier than reading slowly. He argues that when reading a difficult text, for example, individual readers may be tempted to slow down but:

. . . the only efficient strategy is in fact to speed up, to read on . . . we take a quick scan through the material "to see what it is about"—which means to get the essence of the meaning—and then read through a second time relatively fast, to get the details. (p. 189)

In silent reading the skilled reader scans for meaning much faster than 1,000 words per minute which is four times faster than

the rate at which individual words can be identified (Smith, 1973, p. 65). Hence, in order to become an efficient reader, the reader must rely less and less on the print. But if the reader struggles to absorb more of the print than the brain can handle, he or she will probably become a slow and "hobbled" reader—not a fluent one (Smith, 1975, p. 50). In oral reading, on the other hand, the reader must attend to the print in order to produce it accurately. According to Smith (1978), unless the text is already understood, slow reading will interfere with comprehension and/or the reader's memory system will not be able to retain, organize, and store the fragmentary information in any efficient way (p. 179). Although it has not been directly stated by Smith (1973, 1975, 1978), it may be inferred that he is suggesting that rate of reading may be directly related to mode of reading and is of greater significance for the proficient reader rather than for the beginning reader.

Harker (1980) states that "reading rate is a meaningless concept without considering comprehension" (p. 6). That is, although rapid reading is desirable for all readers, not all efficient reading can be carried on at the same rate. For this reason, all readers need to be taught to adjust their rate of reading.

Summary

Reading comprehension appears to be a very complex process which operates differently as one progresses from beginning to proficient reading. In the beginning stages of reading, oral and silent reading appear to involve very similar processes. But as

proficiency in silent reading develops, the processes of oral and silent reading become distinctive. Research comparing good and poor comprehenders has shown that many variables distinguish good readers from poor readers. These variables include: prior knowledge; recall of inferential, specific, erroneous, and external information; text structure; correctional behavior; rate of reading; efficient use of strategies; and instructional procedures.

Findings of research imply that teachers have a preconceived idea of the most appropriate mode of reading for both good and poor readers. It may be that teachers in the primary grades are not aware of the processes of oral and silent reading and how they differ as proficiency in reading develops. The present study was designed to provide further insights into the nature of reading comprehension by examining main effects and interaction of reading achievement groups and modes of reading.

CHAPTER III

THE EXPERIMENTAL DESIGN

This chapter will describe the selection of the testing instruments, the administration and scoring of the instruments, and the coding, analysis and reliability of the data.

The major purpose of this study was to investigate the nature of comprehension of high and low achievers when they read orally as compared with when they read silently. An attempt was made to determine the processes used and the level of material which readers can comprehend when they read orally and silently.

The Selection of the Sample

The test sample was drawn from six elementary schools assigned to the researcher by officials of the Bay of Islands-St. George's Integrated School Board (Corner Brook, Newfoundland) which serves a population of predominantly middle class, English speaking families.

The initial test population consisted of 228 grade two students from nine classrooms. Teachers of all students confirmed that the students had received and had experienced at least two years of reading instruction involving both oral and silent reading. From this population, 40 students were selected and grouped on the basis of performance on intelligence and reading achievement tests. More specifically, sample selection was based upon results obtained on the Gates-MacGinitie Reading Tests, Canadian Edition (1978) Level B,

Form 1, and the Canadian Cognitive Abilities Test (1970) Primary 2, Form 1.

Results on the Gates-MacGinitie Reading Tests, Canadian Edition (1978) Level B, Form 1, were used to obtain a measure of each student's reading achievement and to identify those students who were low or high achievers in reading from the initial grade two population. Students who scored at the 70th percentile and above were placed in the high achievement group. Those students who scored at the 30th percentile and below were placed in the low achievement group. These boundaries were selected as cut-off points so as to ensure a good contrast of reading comprehension abilities.

The Canadian Cognitive Abilities Test (1970) Primary 2, Form 1, was used to select those students who fell within average range (90-120) of intellectual ability. An attempt was made to select subjects on the basis of an equal distribution of intellectual quotients within the range of 90-120 (e.g., 90-100; 100-110; 110-120). This test was used as a control to ensure that differences between high and low reading achievers were not attributable to differences in intellectual ability.

Each sample group consisted of an equal number of males and females. Those students who were judged by their classroom teacher to be seriously deficient in reading skills (i.e., remedial reading students and special education students) were eliminated from the sample groups. These students were eliminated because they were often not receiving regular classroom reading instruction, but instead were receiving remedial help with reading. As well, those students

who were known to have repeated a grade were eliminated from the initial sample population.

Tables 3.1 (for low achievers) and 3.2 (for high achievers) indicate the comprehension scores on the Gates-MacGinitie Reading Tests, Canadian Edition (1978) Level B, Form 1, the sex, intelligence quotient and chronological age for each student. The mean chronological age for the low achievers was 7 years 11 months and for the high achievers, it was 8 years 1 month. The mean IQ scores for the low and high achievement groups were 104.80 and 106.25 respectively. Results on a one way analysis of variance indicated that the achievement groups did not differ significantly on IQ ($F = 1.298$; $df_{1,2} = 19$).

Testing Instruments

Results from three tests were used in this study: the Canadian Cognitive Abilities Test (1970) Primary 2, Form 1; the Gates-MacGinitie Reading Tests, Canadian Edition (1978) Level B, Form 1; and the Standard Reading Inventory (McCracken, 1966), Forms A and B.

In order to obtain a measure of each student's intellectual ability, results from the Canadian Cognitive Abilities Test (1970) Primary 2, Form 1 for use with grades two and three, were administered. The Primary Battery of the test is an integrated series designed to assess the cognitive development of children from kindergarten to grade nine. The series consists of the Canadian Cognitive Abilities Test for use in the primary grades, kindergarten through three, and the Canadian Lorge-Thorndike Intelligence Tests, Multi-Level

Table 3.1

Background Information on Low Grade Two Achievers

Subject	Sex	Comprehension Percentile Score (Gates-MacGinitie, Canadian Edition)	IQ Score (Canadian Cognitive Abilities Test)	Chronological Age (May, 1980)
01	M	21	95	8 yrs. 02 mos.
02	M	18	113	7 yrs. 10 mos.
03	M	18	114	8 yrs. 00 mos.
04	F	07	102	8 yrs. 00 mos.
05	M	27	108	8 yrs. 00 mos.
06	M	16	107	7 yrs. 08 mos.
07	F	18	98	7 yrs. 10 mos.
08	F	14	103	7 yrs. 07 mos.
09	M	24	107	7 yrs. 08 mos.
10	F	16	102	8 yrs. 00 mos.
11	F	18	97	8 yrs. 00 mos.
12	F	10	100	8 yrs. 01 mos.
13	M	16	97	8 yrs. 04 mos.
14	F	12	109	7 yrs. 07 mos.
15	F	16	98	8 yrs. 00 mos.
16	F	21	107	7 yrs. 10 mos.
17	M	18	104	8 yrs. 01 mos.
18	M	14	119	7 yrs. 08 mos.
19	M	16	115	8 yrs. 03 mos.
20	F	27	101	8 yrs. 03 mos.

Table 3.2

Background Information on High Grade Two Achievers

Subject	Sex	Comprehension Percentile Score (Gates-MacGinitie, Canadian Edition)	IQ Score (Canadian Cognitive Abilities Test)	Chronological Age (May, 1980)
21	F	86	99	8 yrs. 03 mos.
22	F	95	116	7 yrs. 11 mos.
23	F	73	111	8 yrs. 03 mos.
24	M	73	94	8 yrs. 02 mos.
25	F	82	98	7 yrs. 10 mos.
26	M	79	103	8 yrs. 04 mos.
27	F	73	105	8 yrs. 04 mos.
28	M	76	105	8 yrs. 05 mos.
29	F	82	119	7 yrs. 10 mos.
30	M	79	115	8 yrs. 04 mos.
31	M	79	104	8 yrs. 01 mos.
32	F	79	104	8 yrs. 01 mos.
33	F	98	103	7 yrs. 09 mos.
34	M	88	107	8 yrs. 04 mos.
35	M	79	101	7 yrs. 08 mos.
36	M	95	111	8 yrs. 03 mos.
37	M	79	95	8 yrs. 02 mos.
38	F	82	120	8 yrs. 04 mos.
39	M	79	109	8 yrs. 04 mos.
40	F	90	116	7 yrs. 05 mos.

Edition, verbal and non-verbal Batteries A through F, in grades three through nine. Primary 2 consists of pictorial materials and oral instructions. It includes four subsets: oral vocabulary, relational concepts, multi-mental ("one that doesn't belong"), and quantitative concepts. Norms for the Canadian Cognitive Abilities Test were established by relating it directly to the Canadian Lorge-Thorndike Test, Multi-Level Edition. The normative testing for the Canadian Cognitive Abilities Test, Primary 2, included 2,219 pupils from a stratified random sample of Canadian schools where English was the language of instruction and was carried out in January and February of 1970. The reliability of the test was based on a representative sample of 300 pupils per grade with the standardization program, and according to the Kuder-Richardson Formula 21, the split-half reliability coefficients range from 0.793 to 0.769.

To obtain a measure of each child's reading achievement and to screen for those children who were low or high achievers in reading from the grade two population of 228, results from the revised 1978 Canadian Edition of the Gates-MacGinitie Reading Tests were used. This test consists of levels R through F, grades one through twelve. Level B, Form 1 was used in this study. This test consists of two parts, vocabulary and comprehension. The comprehension test measures the child's understanding of words and ideas within a passage or the ability to get meaning from whole sentences and paragraphs. The passages are arranged in terms of level of difficulty from simple to complex sentences which also vary in length. Each passage is accompanied by four pictures and the child is required to select the

picture which illustrates the passage or answers a question about the passage. There are 45 items on the vocabulary test, each of which consists of four printed words and a picture illustrating one of the words. The four words for each picture look and sound somewhat alike. The child is required to recognize the words and then to choose the word that corresponds with the picture. This test has two forms. It was normed using approximately 46,000 students from urban and non-urban settings and from different types of schools throughout the ten provinces and the Yukon, in which most of the instruction was given in English. The testing for Level B was done during November, 1978. Fall, mid-year and spring norms were provided. According to the Kuder-Richardson Formula 20, the split-half reliability coefficients for both vocabulary and comprehension were 0.92.

Results from the Standard Reading Inventory (McCracken, 1966), Forms A and B, were used to obtain information on the instructional reading level of subjects as well as the nature of information recalled from passages read orally and silently. Each form has eleven stories for oral reading, eight stories for silent reading and eleven word lists for measuring word recognition in isolation. Both forms were evaluated by reading experts. Twelve evaluated Form A and eleven evaluated Form B. The rank correlation between experts' ratings and the Standard Reading Inventory's book levels was 0.994 for Form A and 0.993 for Form B. Although the two forms are equivalent, the oral and silent passages within each form are not parallel in terms of topic, and furthermore, there is only one passage at each level for silent reading in contrast to two passages for oral reading at the earlier levels of the inventory.

For example, there are two oral reading passages entitled "A Rabbit" and "Tommy" but only one silent reading passage entitled "Circus Time" at the second grade level. Consequently, for the purposes of this study, the oral reading passages on Form A were used for oral reading and the oral reading passages on Form B were used for the silent reading. The oral reading passages contain similar topics and syntactic sentence structures across the two forms. It was felt that if the silent reading passages were used, content and structural differences between passages would confound differences between oral and silent reading comprehension.

The Standard Reading Inventory ranges from pre-primer through seventh grade reading levels for both forms. But because the subjects were required to read only until their instructional level was determined, it was necessary to use only the selections from primer to fifth grade of Form A and the selections from primer to seventh grade of Form B.

The content of the Standard Reading Inventory was based upon three basal reading series: the Sheldon Basic Readers, the Ginn Basic Readers, and the Curriculum Foundation Series (McCracken, 1966). Content validity was obtained by the control of vocabulary, length, context, and style. The Spache Readability Formula was used to analyze the basal readers and to act as a guide in writing the stories from primer to high grade three levels. The alternate-form reliability of the test is 0.91 ($p \leq 0.001$) (McCracken, 1966, pp. 40-43).

Administration of the Test Instruments

The investigator administered all of the tests according to manual instructions to children in each of the nine classrooms. Class sizes ranged from 18 to 31 students.

The Canadian Cognitive Abilities Test (1970), Primary 2, Form 1 was group administered between May 12, 1980 and May 16, 1980 inclusive and on May 23, 1980.

The Gates-MacGinitie Reading Tests, Canadian Edition (1978), Level B, Form 1 were administered between May 19, 1980 and May 27, 1980 inclusive. They were also group administered.

Passages from the Standard Reading Inventory (McCracken, 1966) were administered between May 29, 1980 and June 13, 1980 inclusive. This informal reading test was individually administered to each of the 40 subjects in the sample groups. For the purposes of conducting these testing sessions, a quiet self-contained room free from most distractions and interruptions with the exception of call bells, was procured in all of the six schools.

In selecting a beginning point on the Standard Reading Inventory (McCracken, 1966), the investigator noted the subject's vocabulary, comprehension and total reading grade equivalent scores on the Gates-MacGinitie Reading Tests, Canadian Edition (1978) Level B, Form 1. For example, if a subject's total reading grade equivalent was 4.1, vocabulary score was 4.7, and comprehension scores was 3.7, the subject's beginning point on the Standard Reading Inventory (McCracken, 1966) was 3.1. In other words, a level was selected which was approximately six months below the lowest score the student had achieved

on the subtests of the Gates-MacGinitie Reading Tests. This was done to ensure that children would be able to begin reading at a comfortable level and therefore, extraneous factors such as lack of confidence would not bias the results of the instructional level obtained by subjects. Once the Standard Reading Inventory (McCracken, 1966) testing commenced, the subject was required to read each story either orally or silently. Immediately following the reading of each story the subject was then required to recall as much of the story as possible and likewise, answer questions to assess comprehension of ideas not included in the recalls. (Complete directions for the administration of the test are included in Appendix A.)

In order to control for order effects of the mode of reading, subjects in each reading group were randomly assigned to two equal subgroups for test administration (see Figure 3.1). In addition, only one mode of reading was given on the same day to any subject and at least a minimum of one day had elapsed before giving the second mode of reading. It was felt that this procedure might help overcome learning effects on recall of information which might occur if both oral and silent reading passages were read by the subjects on the same day. Testing continued until instructional level was established.

Scoring of the Test Instruments

The Canadian Cognitive Abilities Test (1970), Primary 2, Form 1 and the Gates-MacGinitie Reading Tests, Canadian Edition (1978) Level B, Form 1 were scored by the investigator according to the

Group*	Order of Presentation
High Achievement A	$O_1 S_2$
High Achievement B	$S_1 O_2$
Low Achievement A	$O_1 S_2$
Low Achievement B	$S_1 O_2$

*n = 10

$O_1 S_2$ = oral reading first, silent reading second.

$S_1 O_2$ = silent reading first, oral reading second.

Figure 3.1

Administration of Test Instrument

answer keys provided. The intelligence quotients for the Canadian Cognitive Abilities Test were obtained from the norms provided in the examiner's manual. Since the students had received the Gates-MacGinitie Reading Tests during the month of May, spring norms were used in the determination of the percentile rank.

In addition, the Standard Reading Inventory (McCracken, 1966) was scored by the investigator. Ten standardized questions from the examiner's booklet of the Standard Reading Inventory (McCracken, 1966) were used to guide the scoring of recall that accompanied each story selection. As the subject recalled a particular story selection, a plus was placed on the space in front of each question answered correctly in the examiner's booklet. Then when the subject finished retelling a particular story, the investigator asked the subject those questions answered incorrectly in unaided recall (free recall) or unanswered during unaided recall. The total of unaided recall and elicited answers to questions was used to determine the subject's instructional reading level on both modes of reading.

Coding of the Data

For the purposes of this study, recalls on passages at the subject's instructional level were analyzed and categorized for both oral and silent reading. This was to ensure that differences between high and low readers in the nature of information recalled were not the result of one group reading at instructional level and the other at frustration level. The recalls were tape recorded and transcribed at a later time.

Following the transcription of the unaided recalls, the protocols obtained on the Standard Reading Inventory (McCracken, 1966) were divided into units using Fagan's (1978) basic and alternate t-units. The basic t-unit is the simplest independent predication which may be used to convey information. Alternate syntactic structures have a basic t-unit make-up which with the addition or substitution of words could become a basic t-unit. For example, "Jack had a sister who was named Mary" has a basic t-unit and an alternate syntactic structure. The basic t-unit is "Jack had a sister" and the alternate syntactic structure is "who was named Mary" (relative clause).

Basic t-units may be represented as follows:

1. (D) NV (Adj.) (Adv.) - The boy whistled
 - Henry felt foolish
 - The dogs ran silently
2. (D) NV (Adj.) (N) (N) - The rabbit started eating the
 flowers
 - Henry got a new camera
 - Grandmother needed flour
3. (D) NV (PP) - On the way Tommy found a turtle
 - Bob was going out for a walk.

A complete list and examples of alternate t-units appear in Appendix B.

Each basic structure or unit was then categorized as to the type of information produced during recalls using Fagan's (Note 3) adaptation of Drum and Lantaff's (1977) analysis. The categories used for this study are summarized in Table 3.3. Appendix C defines each category and provides examples for each category taken from the protocols collected for the study.

The system used to divide the protocols into basic t-units has

Table 3.3
Category System for Scoring Recall Protocols

-
- A. Text Specific Information
 - A1 Verbatim Repetition of Text Units
 - A2 Synonymy of Elements
 - A3 Substitution of Pronouns
 - A4 Propositional Contractions
 - B. Text Entailed Information
 - B1 Inferences Entailed by the Text
 - B2 Case Related Information
 - B3 Local Summary
 - B4 Predicate Expansion
 - B5 Argument/Attribute Expansion
 - C. Text Experiential Information
 - C1 Experiential Intrusions
 - D. Text Erroneous Information
 - D1 Faulty Inference
 - D2 Erroneous Expansions
 - D3 Errors in Dates and Proper Names
 - D4 Unacceptable Substitutions
 - E. Text External Information
 - E1 Generalizations
 - E2 Story Telling Conventions
-

been found beneficial in studies of oral language (Fagan, 1978) and written language (Adams, 1979; Forster, 1978; Zinn, 1979). Fagan's adaptation of Drum and Lantaff's protocol analysis was used to determine the nature of the information produced in the recalls. Marshall and Glock (1978) have stated that recall of information is one way of assessing comprehension as a process. That is, to determine how a subject has silently read a story selection (the process), the product (recall information) can be analyzed in order to infer the processes involved in comprehension. Oral reading involves a physical activity which is directly observable. Silent reading, on the other hand, is a mental activity which is not directly observable. As such, by having subjects produce information by recalling a story selection after reading it and answering probing questions, categorization of protocols will help determine the processes used in comprehension.

In order to insure the reliability of the above coding by the investigator, an independent judge (Ph.D. in reading) also analyzed the protocols of twenty subjects (ten for basic structures and ten for recall categories). Inter-rater agreement was computed by utilizing the Arrington Formula as delineated by Feifel and Lorge (1950), i.e.,

$$\frac{2 \times \text{Agreements}}{(2 \times \text{Agreements}) + \text{Disagreements}} .$$

The formula yielded a score of 0.92 for the basic structures and 0.94 for the recall categories which are considered acceptable rates of agreement.

Analysis of the Data

This study involves a 2 x 2 factorial design with reading achievement and the mode of reading as independent variables. Dependent variables include instructional reading level and the proportion of units in text specific, text entailed, text experiential, text erroneous, and text external categories. As the protocols for each subject contained a different number of basic structures, the scores were presented as proportions. To get correlations among the variables, the Fortran IV program was used.

One-way analysis of variance (ANOVA 10) for independent means was used to determine whether there were any significant differences between groups on IQ scores.

Two-way analysis with repeated measures (ANOVA 26) for dependent means were used to test the hypotheses formulated for the study.

Summary

A sample of 40 grade two readers were selected from six elementary schools in the Bay of Islands-St. George's Integrated School System (Corner Brook, Newfoundland). The initial test population consisted of 228 grade two students. The Canadian Cognitive Abilities Test (1970), Primary 2, Form 1 and the Gates-MacGinitie Reading Tests, Canadian Edition (1978) Level B, Form 1 were administered to all of the grade two students in May, 1980. Students were grouped according to the criteria of IQ (90-120) and reading achievement (30th percentile and below or the 70th percentile and above). According to these

results, subjects were assigned to either the high achievement reading group or the low achievement reading group.

Passages from the Standard Reading Inventory (McCracken, 1966) were administered to each subject individually until an instructional level of reading comprehension was obtained for both oral and silent reading. Each subject's protocols were tape recorded and transcribed. These protocols were then analyzed by dividing each protocol into basic syntactic structures. Following this procedure, each basic structure was categorized to determine nature of information recalled.

Statistical treatment of the data included one-way and two-way analysis of variance for independent and dependent means.

CHAPTER IV

FINDINGS AND DISCUSSION

This chapter includes the results of the study in relation to the hypotheses restated from Chapter I. These findings are followed by discussion and are synthesized in the concluding summary. The data were subjected to a two-factor analysis of variance (ANOVA 26) with repeated measures on the mode of reading variable to investigate:

1. differences between reading achievement groups on instructional reading level and nature of information recalled from passages read;
2. performance on the oral as opposed to the silent mode of reading; and
3. the interaction effect between reading achievement groups and modes of reading.

In reporting the results of the statistical analysis, the .05 level of significance was accepted (Ferguson, 1976, p. 162).

Instructional Reading Level

One of the major questions addressed in this study was whether students in grade two can comprehend material at a higher level when reading orally or when reading silently. Students were asked to read passages of increasing difficulty to determine the highest level in each of the oral and silent reading situations which they could adequately comprehend (instructional reading level). The following

hypothesis was formulated to determine the effect of achievement groups, and mode of reading on instructional reading level.

Hypothesis 1

There will be no significant main effect or interaction of reading achievement groups and mode of reading on instructional reading level.

Findings

As may be seen from Table 4.1, the two-factor analysis of variance indicates that there are significant differences between the two reading achievement groups on their instructional level of reading achievement at the .01 level of confidence. The results show that the high reading achievers attained a significantly higher level of reading achievement on both reading modes than did the low reading achievers. The cell means for the two reading groups have been given in Table 4.2.

Results also revealed that significant differences were evident between the modes of reading (oral and silent) on instructional reading level for low reading achievers and high reading achievers at the .01 level of significance. The cell means for the two groups on this measure have been plotted in Figure 4.1 which illustrates the performance of the two groups on oral and silent reading passages. Instructional reading levels for both achievement groups were higher for the silent mode of reading in comparison to the oral mode of reading.

As may be seen from Table 4.1, the two-factor analysis of variance revealed a significant interaction effect between the modes

Table 4.1

Summary of Two-Factor Analysis of Variance for Achievement
Groups and Mode of Reading on Instructional
Reading Level

Source of Variation	SS	DF	MS	F	p
Between Subjects	75.422	39			
'A' Main Effects	41.905	1	41.905	47.512	0.00000*
Subjects within Groups	33.516	38	0.882		
Within Subjects	18.006	40			
'B' Main Effects	5.460	1	5.460	19.361	0.00008*
'A x B' Interaction	1.830	1	1.830	6.490	0.01502**
'B' x Subjects within Groups	10.716	38	0.282		

*Significant at .01 level ($p \leq .01$)

**Significant at .05 level ($p \leq .05$)

Factor 'A' = Achievement levels

Factor 'B' = Mode of reading

Table 4.2

Cell Means of Instructional Levels for Achievement Groups
and Modes of Reading

Group	Mean Level of Silent Reading	Mean Level of Oral Reading
Low	2.615	2.395
High	4.365	3.540

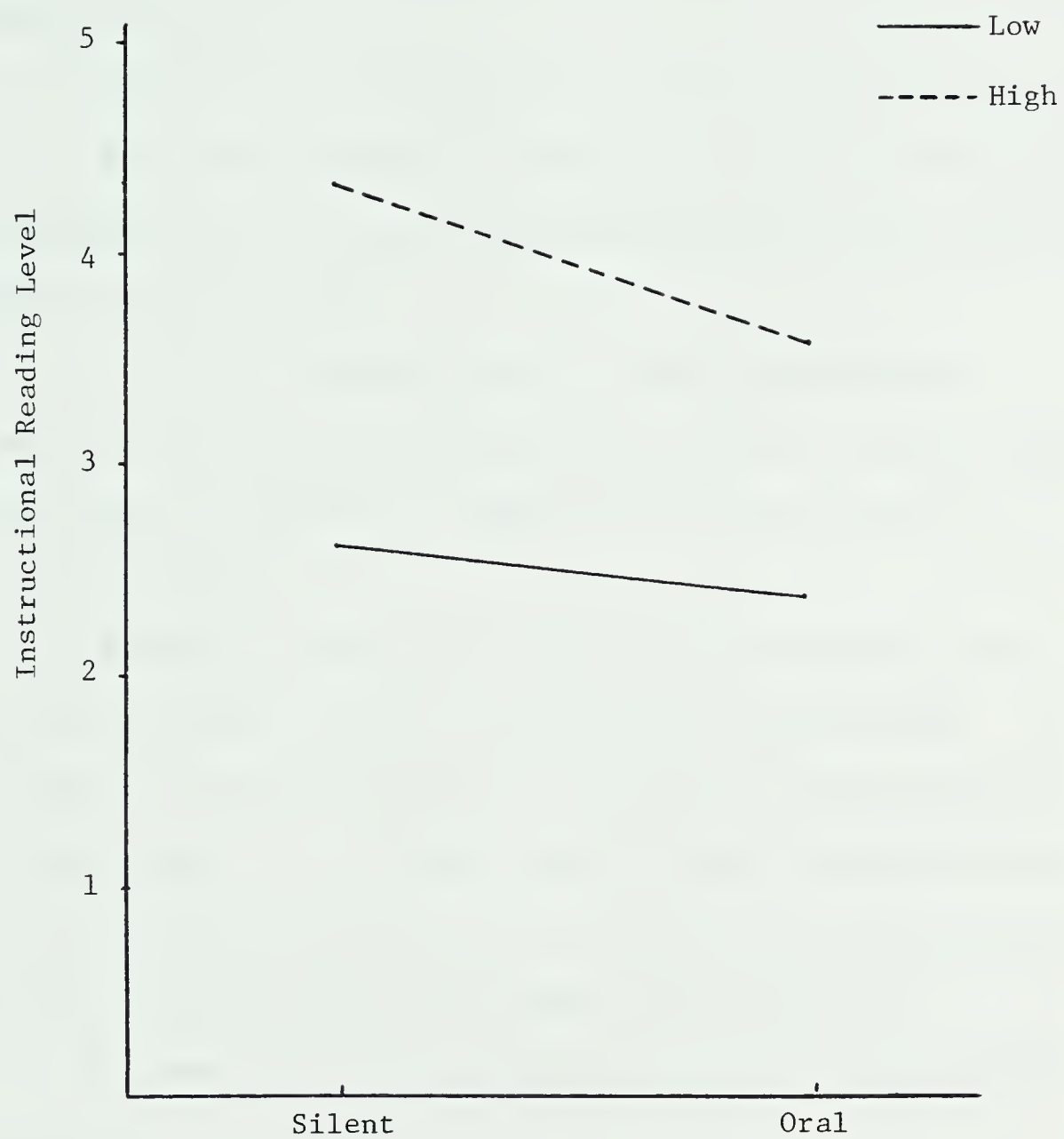


Figure 4.1

Mean Instructional Levels of Low and High Reading Groups
on Oral and Silent Reading

of reading and achievement groups at the .05 level of significance. Although the instructional reading levels for both reading groups were significantly higher on silent as compared to oral reading, the differences were greater for the high achievers in contrast to the low achievers (see Figure 4.1).

In summary, the following results were obtained:

1. There were significant differences in instructional reading levels obtained by high and low reading achievement groups on both oral and silent reading passages.

2. The mode of reading (oral or silent) significantly affected the performance of the high and low reading achievement groups with both groups performing at a higher instructional level on silently read passages.

3. Significant interaction effects occurred between modes of reading and achievement groups on instructional reading levels. For the low reading achievement group, the difference between the mean instructional levels on oral reading versus silent reading within the group was 0.220 whereas, the difference between the mean instructional levels within the high reading achievement group was 0.825.

On the basis of the above results, Hypothesis 1 was rejected.

Discussion

The high reading achievers in this study obtained higher instructional reading levels on both oral and silent reading modes than did the low reading achievers. Furthermore, for both reading achievement groups, higher instructional reading levels were obtained for silent reading passages rather than orally read passages. These findings

suggest that for low and high reading achievement groups the silent mode was preferred over the oral reading mode. This is somewhat surprising since primary teachers have been found in studies by Browne (1971) and Yake (1973) to emphasize oral reading for low reading groups and silent reading for high reading groups. The results of this instructional emphasis are partially reflected in this study, however, when one considers the interaction effect between modes of reading and reading achievement groups. Poor readers, who generally receive a heavier emphasis on oral reading than do good readers, performed better on silent than oral reading, but the difference between modes of reading was significantly greater for the good readers. Hence, it appears that instructional procedures may indeed have accounted for the interaction effects between modes of reading and reading achievement groups.

The results of this study do not provide support for the heavy emphasis on oral reading often used with low reading achievement groups. It does not appear, as has been suggested by Eagan (1973) with second and third grade pupils, that oral reading facilitates comprehension for these readers. Results are also inconsistent with those of Means (1969) and Morris (1970) who found that all children in their fourth grade samples obtained higher scores on oral as compared to silent reading comprehension.

By examining how grade four children evaluated oral reading before a group, Matthews (1974) found that all the children in her study preferred silent reading over oral reading. Although this study did not directly assess reading preference, findings are consistent

with those of Matthews because both reading achievement groups obtained higher instructional reading levels on the silent reading mode in comparison with the oral reading mode.

Smith, Goodman, and Meredith (1976) reviewed several studies which have shown that, in opposition to some of the studies noted earlier, children tended to comprehend better when they read silently than when they read orally. The findings of this study have shown that this is true for both high and low achievement groups. Consequently, if silent reading is significantly superior to oral reading for an understanding of written material, then it follows that instructional procedures which emphasize silent reading over oral reading would be as appropriate for low as for high reading achievement groups.

Nature of Information Recalled from Passages

In order to obtain some indication of processes used by high and low reading achievers in oral and silent reading modes, recall protocols were analyzed in terms of the nature of information recalled. The following hypothesis was generated to determine:

1. differences in the nature of information recalled on the two types of reading modes;
2. differences in the nature of information recalled between reading achievement groups; and
3. the interaction of reading achievement groups and mode of reading on the nature of information recalled.

Hypothesis 2

There will be no significant main effects or interaction of reading achievement groups and modes of reading on the proportion of units which fall into each of the following recall categories:

- a. Text Specific
- b. Text Entailed
- c. Text Experiential
- d. Text Erroneous
- e. Text External.

Findings

The two-factor analysis of variance for main effects did not reveal any significant differences between the low and high reading achievement groups in the type of information produced in the recall categories (see Table 4.3). It appears from these results that in recalling information, both low and high reading achievers were able to select, to remember, and to recall information after reading passages which fit into all recall categories.

Table 4.4 shows the results of the two-factor analysis of variance for main effects of mode of reading on the nature of information recalled. The results revealed significant differences at the .01 level between oral and silent reading on two recall categories—text specific and text erroneous. No significant differences were found between oral and silent reading on text entailed, text experiential, and text external recall categories. Cell means for categories of recall on silent and oral reading passages are given in Table 4.5. As can be seen from Table 4.5, the results indicate

Table 4.3

Summary of Two-Factor Analysis of Variance for Main Effects
of Reading Achievement Groups on Recall Categories

Recall Categories	SS	DF	MS	F	p
Text Specific	0.001	1	0.001	0.016	0.90060
Text Entailed	0.005	1	0.005	0.220	0.64204
Text Experiential	0.001	1	0.001	0.290	0.59308
Text Erroneous	0.008	1	0.008	1.132	0.29409
Text External	0.001	1	0.001	0.109	0.74290

Table 4.4

Summary of Two-Factor Analysis of Variance for Main Effects
of Modes of Reading on Recall Categories

Recall Categories	SS	DF	MS	F	p
Text Specific	0.223	1	0.223	9.242	0.00427*
Text Entailed	0.019	1	0.019	0.750	0.39192
Text Experiential	0.001	1	0.001	0.262	0.61147
Text Erroneous	0.077	1	0.077	14.872	0.00043*
Text External	0.001	1	0.001	0.331	0.56852

*Significant at .01 level ($p \leq .01$).

Table 4.5
Cell Means for Recall Categories on Silent and Oral Reading Passages

Reading Achievement Group and Mode of Reading	Text Specific	Text Entailed	Text Experiential	Text Erroneous	Text External
Low - Silent	0.518	0.295	0.023	0.104	0.060
High - Silent	0.494	0.331	0.032	0.097	0.043
Low - Oral	0.549	0.284	0.032	0.056	0.030
High - Oral	0.629	0.280	0.011	0.022	0.058

that both low and high reading achievement groups had recalled a higher proportion of verbatim information or information that was synonymous with the text (text specific information) on oral reading passages in contrast to a high proportion of text erroneous information on silent reading passages.

Results from the two-factor analysis of variance further showed no significant interaction effects between reading achievement groups and modes of reading at the .05 level (see Table 4.6).

Table 4.6

Summary of Two-Factor Analysis of Variance for Interaction Effects between Reading Achievement Groups and Modes of Reading

Recall Categories	SS	DF	MS	F	p
Text Specific	0.017	1	0.017	0.723	0.40048
Text Entailed	0.008	1	0.008	0.318	0.57609
Text Experiential	0.005	1	0.005	1.634	0.20897
Text Erroneous	0.004	1	0.004	0.737	0.39610
Text External	0.010	1	0.010	3.181	0.08251

In summary the following results were obtained in relation to Hypothesis 2:

1. There were no significant differences between the low and high reading achievement groups in the type of information produced in the recall categories.
2. There were significant differences between oral and silent reading on text specific and text erroneous recall categories.

3. There were no significant interaction effects between reading achievement groups and modes of reading on the nature of information recalled.

On the basis of these results, Hypothesis 2 was accepted for the main effects of reading achievement groups and for interaction of achievement groups and mode of reading but was rejected for main effects of mode of reading on nature of information recalled.

Discussion

More text specific information was recalled on oral reading passages while on the silent mode of reading, more text erroneous information was recalled. This suggests that different processes were occurring during oral and silent reading. Both high and low achievers tended to provide more text specific information on orally read passages. That is to say, readers tended to be bound by the text information rather than using inferential information or higher level thinking processes to synthesize the textual information. It should be noted that in oral reading the reader must attend to the print if he or she is to accurately produce orally what the print symbolizes. Because oral reading requires more precise processing of the print, this may have aided the readers in this study to remember specific bits of information from the print and thus, may be one reason why both high and low achievers recalled more text specific information.

More text erroneous information was produced following the process of silent rather than oral reading. This category consists of faculty inferences or generalizations that have no specific relationship to the text. Since silent reading does not require precise

processing of the print, the high and low achievers in this study may have relied less on the print and instead attempted to rely more heavily on their own background knowledge or experiences. This was a partially effective strategy in that both high and low achievers were able to comprehend more difficult material when reading silently than orally. Unfortunately, however, they sometimes relied too heavily on background knowledge and made inferences and generalizations beyond the constraints of the text.

The results of this study, then, suggest that there are some similarities between the processes involved in oral and silent reading as well as some differences when the nature of information recalled is used as an indicator of comprehension processes. Theoretically, writers such as Goodman (1970) and Smith (1978) have suggested that at the beginning level of reading there are few process differences between oral and silent reading, but that the two modes become quite distinct as readers develop proficiency. It would appear from the results of the present study that differences between the processes involved in oral and silent reading begin to emerge as early as second grade, even with low reading achievers.

The finding that there was no significant difference between high and low achievers in the nature of information recalled is consistent with that of Berger and Perfetti (1977). They found that less skilled readers recall the same type of information that skilled readers do but unlike the skilled readers, they recall less of this information. However, the findings of the present study are not consistent with some of the research which used similar recall

categories. Drum and Lantoff (Note 1) and Zinn (1979) found differences between good and poor readers in the type of information recalled. However, the findings of this study suggest that what good and poor readers recall will depend upon the mode of reading rather than level of reading proficiency. Malicky and Beebe (Note 2) found that low gain readers recalled more erroneous and irrelevant information than had high gain readers when tested on silent reading passages. The fact that there were no significant differences between high and low achievers in this study seems to indicate that both groups of readers were processing information in a similar manner. Because neither Drum and Lantoff nor Malicky and Beebe performed statistical analysis on their data, however, direct comparison of results is somewhat questionable. There are also major sample differences between these studies and that used in the present study which may account for the lack of consistency in the results. Malicky and Beebe compared two groups of poor readers. Drum and Lantoff studied a junior high school sample and all subjects in their study read content area material at a junior high reading level. It seems likely that differences between reading proficiency groups in Drum and Lantoff's study were related to the fact that good readers were reading material at an appropriate instructional reading level whereas the poor readers were experiencing frustration with material which was too difficult. In the present study comparisons between processes of good and poor readers were made with materials at appropriate instructional reading levels. Results suggest that when material difficulty is adjusted to the instructional level of readers, there are no significant differences between

comprehension processes employed by high and low readers as indicated by the nature of their unaided recalls. These results provide support for the need to adjust material so that all children, particularly low achievers, receive reading instruction at an appropriate level. If this is done, mode of reading would appear to have a more significant impact on the nature of information recalled from passages than would level of reading proficiency.

Summary

Subjects were presented with passages which they were asked to read either orally or silently. Results on unaided recalls following the oral or silent reading of passages were compared for high and low achievement groups.

Findings revealed that significant differences were evident between the modes of reading on instructional reading level attained by high and low achievers. Significant differences were also found between the high and low achievers on their instructional reading level for both oral and silent reading. Further analysis revealed interaction effects between modes of reading and reading achievement groups on instructional reading level. The instructional reading levels for both reading groups were significantly higher on silent reading in comparison with oral reading but these differences were greater for the high achievers in contrast to the low achievers. Significant main effects were also found for recall of text specific and text erroneous information when modes of reading were compared.

No significant differences were found for the other variables

measured. No main effects were found when modes of reading were compared for recall of information which fell into text entailed, text experiential, and text external categories. In addition, no main effects of achievement groups nor significant interaction effects between reading groups and modes of reading were evident on the proportion of information which fell into text specific, text entailed, text experiential, text erroneous, and text external recall categories.

CHAPTER V

SUMMARY, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

This chapter will present a summary of the study, major findings and conclusions, implications for instruction, and suggestions for further research.

Summary of the Study

The major purpose of this study was to investigate the level and nature of comprehension of high and low achievers when they read orally as compared with when they read silently.

The sample consisted of 40 children drawn from second grade classrooms in the Bay of Islands-St. George's Integrated School Board System, Corner Brook, Newfoundland. The initial test population was comprised of 228 second grade children. From the initial test population, 40 subjects were selected on the basis of performance on intelligence and reading achievement tests. The Canadian Cognitive Abilities Test (1970) Primary 2, Form 1 was used to select those students who fell within the average range of intellectual ability (90-120) and the Gates-MacGinitie Reading Tests, Canadian Edition (1978) Level B, Form 1 was used to obtain a measure of each student's reading achievement. Subjects were placed in two equal groups such that:

1. those students of average intellectual ability who scored at the 70th percentile and above were placed in the high achievement group, and

2. those students of average intellectual ability who scored at the 30th percentile and below were placed in the low achievement group.

Passages from the Standard Reading Inventory (McCracken, 1966) were administered individually by the researcher to each of the 40 subjects. Each subject was required to read passages either orally or silently until an instructional level of reading was established. An unaided recall was requested following the reading of each passage. This was then followed by questions designed to assess comprehension of ideas not included in the unaided recalls.

The unaided recalls were tape-recorded and later transcribed into protocols for analysis into basic structures which were then categorized according to type of recall.

The statistical treatment of the data included one-way and two-way analysis of variance for independent and dependent means.

Major Findings and Conclusions

High and low reading achievers were compared to determine whether students could comprehend material at a higher level when reading silently or when reading orally. Analysis of data revealed significant main effects and interaction of reading achievement groups and modes of reading on instructional reading level. More specifically, there were significant differences in instructional reading levels obtained by high and low reading achievers on both oral and silent reading passages. The high reading achievement group performed at a higher level on both reading modes. In addition, significant

differences in instructional reading levels were found to occur between the modes of reading (oral and silent) for both high and low reading achievement groups. When performance on oral and silent reading passages was compared, both reading achievement groups performed better on the silently read passages, although these differences were greater for the high achievers in contrast to the low achievers. Since silent reading comprehension was significantly superior to oral reading in this study, however, it may be concluded that instructional procedures which emphasize silent reading over oral reading would be as appropriate for low reading achievers as for high reading achievers.

With respect to the processes used by high and low achievers, no significant differences were found in the type of information produced in the recall categories. Both high and low reading achievers were able to select information for recall which fit into all recall categories—text specific, text entailed, text experiential, text erroneous, and text external—when reading orally and silently. Thus, it can be concluded that reading processes are similar for high and low achievers. However, further analysis of the findings revealed that there were significant differences between oral and silent reading on text specific and text erroneous recall categories. More text specific information was recalled following oral reading, whereas more text erroneous information was recalled following silent reading. Hence, it can be concluded that on these recall categories the process of oral reading was significantly different from the process of silent reading for second grade children in the present

study. Theoretically, writers such as Goodman (1970) and Smith (1978) have suggested that at the beginning reading levels there are few process differences between oral and silent reading. They further advocate that the two reading modes become quite distinct as readers develop proficiency. The findings of the present study suggest that differences between processes used in oral and silent reading begin to emerge as early as second grade, even with low reading achievers.

In summary, then, significant differences occurred between level of performance on oral and silent reading but these differences were more pronounced for the high reading achievers. Hence, comprehension was better for both good and poor readers in the silent mode of reading. Therefore, there appears to be little justification for a heavier emphasis on oral reading with low reading achievers. As well, some differences between the processes used in oral and silent reading were evident but there were also some similarities. Finally, there were no significant differences between high and low reading achievers in the nature of information recalled when reading material at an appropriate instructional level.

Implications of the Study

The finding that low achievers as well as high achievers are able to comprehend material at higher instructional levels when reading silently than orally has many implications. Classroom teachers, resource room teachers, and reading clinicians should re-evaluate the common practice of placing a heavier emphasis on oral reading in the programs of problem readers as compared to good readers. Since silent

reading comprehension is the ultimate goal of reading instruction and low achievers, like high achievers, are able to understand more difficult material when it is read silently, there should be more increased emphasis on silent reading for low reading achievers. This is not to suggest that oral reading should be excluded in the primary grades but there should be no difference between high and low achievers in terms of relative amount of instructional time spent on oral as compared to silent reading.

The findings that no significant differences occurred in high and low reading groups in the type of information produced in the recall categories, and that there were no significant interaction effects between reading achievement groups and modes of reading on the nature of information recalled, lead to another implication. That is, the processes of reading comprehension (as indicated by the nature of information produced in unaided recalls) do not differ for high and low achievers when they are reading material at an appropriate instructional level. Hence it is crucial, if the reading processes of low achievers are to resemble those of high achievers, that the difficulty of material presented to low achievers be adjusted to their instructional reading level.

A further implication results from the finding that there are differences as well as similarities in the nature of information recalled following oral as compared to silent reading. This finding has implications for reading theory. It would appear that there are differences between the processes involved in oral and silent reading as early as second grade and that these differences are evident for

both high and low reading achievers. The hypothesis that oral and silent reading become distinct processes only as readers develop proficiency (Goodman, 1970; Smith, 1978) needs to be reexamined. This finding also has implications for reading instruction. Since both high and low reading achievers produced more erroneous information when reading silently than orally, discussion following silent reading would appear to be essential. This discussion would focus children's attention on the relationship of their background knowledge to text information. More specifically, children would be asked to provide justification for their inferences by reference to specific information in the text.

Finally, the use of unaided recall, and more specifically the system of categories for analyzing recall protocols adopted by Fagan (Note 3), were found to be of value in assessing the reading comprehension processes of both high and low achievers at the second grade level. The results of this study reinforce the value of unaided recall as both a research and assessment tool.

Suggestions for Further Research

1. The present study examined the nature of information comprehended on oral and silent reading passages when students were reading passages at an appropriate instructional reading level. This was assumed to indicate the importance of adapting the level of difficulty of materials for low achievers. Further studies are needed, however, using different reading levels (such as frustration and independent reading levels when reading orally and silently), to

determine if in fact similarities and differences exist between reading achievement groups when material difficulty is not carefully controlled.

2. The present study used a limited number of subjects and could be replicated using a larger sample in order to confirm the findings.

3. The present study used only second grade children from a particular age group. Other studies could be conducted across different reading ability groups and grade levels to determine if similar results would be obtained, and to investigate the effect of development on the variables included in this study.

4. Although it was assumed that the interaction effect between mode of reading and reading proficiency groups was related to a heavier emphasis on oral reading for low reading achievers rather than high reading achievers, this assumption needs to be investigated experimentally. Observational data on the amount of time actually spent by proficiency groups would be related to level of comprehension on oral as compared to silent reading.

5. In the light of the findings of this study, it would be beneficial to conduct a study in which both high and low achievers are given opportunities to have the same amount of practice on silent reading. Then each group would provide unaided recalls for their oral and silent reading of passages to assess their comprehension and results would be compared.

6. Studies could be conducted with children to determine which percentage of a particular population prefer the oral mode of reading as compared with the silent mode of reading. Having obtained this

information for each reader, his or her preference for a particular mode of reading could be compared with his or her actual reading behavior on both oral and silent reading to determine how accurate the reader's assessment has been for processing the information read orally as compared with material read silently.

Concluding Statement

Theorists have suggested that reading comprehension during oral and silent reading are similar cognitive processes for beginning readers. These theorists have suggested that these processes become distinctive when readers develop proficiency in reading. Much of the literature has suggested that oral reading is more beneficial for poor readers because for these readers oral reading facilitates comprehension.

This study investigated the nature of reading comprehension of high and low achievers when they read orally as compared with when they read silently. The findings have suggested that both high and low reading achievers are able to comprehend more difficult material when it is read silently as compared to orally, and that there are differences between the processes involved in oral and silent reading at this early stage of reading development.

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APPENDICES

APPENDIX A
DIRECTIONS FOR ORAL AND SILENT READING TESTS

DIRECTIONS FOR THE ORAL READING AND SILENT READING TESTS

Brief Warm-up Discussion

I want to see how well you understand what you read. I want you to read some short stories out loud for me. After you read the story, I want you to tell me everything you remember about the story you read. If you cannot remember everything about the story you just read, I will ask you some questions about the story which may help you remember the parts of the story you forgot. I am not interested in how much you remember, or how fast you read, or how many questions you answer right or wrong. I am only interested in how well you understand what you read.

I have a copy of each story which you will read. While you are reading, I will mark on my copy the way in which you read, all the things you do right and any mistakes you may make. You may take as long as you like to read each story. Also, I will use this tape recorder (indicate tape recorder) to tape what you remember about the story so that I can listen again to the tape to make sure I have everything copied down correctly.

I want to make sure that you understand what I want you to do. Before we begin the test, I want you to read this story "A Trip" out loud for me (indicate the appropriate page). You may begin.

Good. (Take the story from the child.) Tell me everything you remember about the story you just read. (Turn on tape recorder for unaided recall protocols and write down the unaided recall protocols provided by the child. Next, ask those questions which the child did not answer during the unaided recall protocols.) Now, do

you understand what I want you to do for me? Are there any questions you would like to ask me before you begin the reading test for me?

Before you start, I would like you to say your name, the name of your school and your age so that we can make sure the tape recorder is working. (Do so. Play this segment back for the child to listen to.)

Directions for Introducing Each Story

This story is called _____ (say the exact story title). I would like you to read this story orally (or silently as indicated) and tell me about it when you have finished. (If the child was reading silently and asked for help, the investigator stated "I cannot help you with the silent reading because I want to see if you can do it all by yourself." If the child asked a second time for help with the silent reading of the same story, the examiner usually told the child the word and make a note of the number of times the child asked for help. If the child insisted on having more than one word pronounced in the silently-read story, the examiner considered the child's reading to be at the frustration level.)

APPENDIX B
EXAMPLES OF ANALYZED SYNTACTIC UNITS

ALTERNATE T-UNITS

(Fagan, 1978)

Examples of the syntactic structures which were analyzed are as follows:

Relative Clause

There was a boy who was named Jack.

That + S as Object/Subject/Complement

He saw that he had a black-eye.

Wh + S as Object/Subject

He forgot what his grandmother told him to get.

Infinitive as Object

He wanted to run.

Infinitive of Purpose

The other hunters tried to help him.

He went down to the drugstore to get some film.

Ing-Nominalization of Purpose

He was going to the store.

Bob was going out for a walk.

Adverbial Expansion of Man + S

The boy whistled so that he could come back.

Adverbial Expansion-1 in Place/Time/Manner/Cause

They went where there was running water.

He was real excited when his parents gave him a camera.

Common Elements

This refers to a structure which by itself is incomplete as a basic t-unit but could easily be expressed as such.

Tommy got some peanuts and water.

She gave him a dollar and ten coppers.

(Wh + Auxiliary/Verb)

The turtle dug a hole about six inches deep.

(That) + S as Object

He thought the police would be interested in the pictures.

(That) + S as Object Quotation (the quotation must contain a verb)

He said, "Mother, I cannot find my kitten."

His mother said, "Go look outside."

Comparative 2

The eggs were like round marbles.

The Horseshoe Bend was like a river or pond.

With Phrase

It was a man with a shovel.

He began playing with a turtle.

Adjective (only in front of the noun)

The brave hunter lost his life.

His heavy coat protected him.

Genitive

The eggs would hatch by the sun's rays.

It was Henry's birthday.

APPENDIX C

EXAMPLES OF RECALL PROTOCOL CATEGORIES

EXAMPLES OF RECALL PROTOCOL CATEGORIES

- A. Text Specific Information—Units of information in recall which involve verbatim recall or which are synonymous with the text.

- A1 Verbatim Repetition of Text Units—These units include syntactic paraphrases with no new information, e.g., passive to active, and semantic simplification of a predicate term, e.g., present perfect progressive to present tense shift.

Text: They live with Father and Mother on a big farm.

Recall Protocol: They lived on a farm with their mother and father.

(Subject 19) Oral Reading

- A2 Synonymy of Elements is defined as a content dependent one rather than the usual normative one typified by the use of a thesaurus as a criterion for synonymy. In order to determine whether lexical elements in protocols are synonymous with lexical elements in text propositions (a) they must assume the same grammatical function; (b) they, in the subjective opinion of the scorer, have the same conceptual referents, and (c) if other members of the protocol have definite correlates in the text unit.

Text: Jack lies to play cowboy.

Recall Protocol: Jack likes to play cowboys.

(Subject 02) Oral Reading

A3 Substitution of Pronouns is accepted if the referent is present elsewhere in the protocol.

Text: Bill looked down. He found some money.

Recall Protocol: Bill found some money.

(Subject 15) Silent Reading

A4 Propositional Contractions are units of information in a contracted fundamental attribute form.

(No recall protocols were in this category.)

B. Text Entailed Information—Units of information in recall which summarize two or more sentences in the text or include inferences which are consistent with information in the text.

B1 These are inferences entailed by the text involving the bringing together of two separate text items in a new text-consistent relationship.

Text: He planted some flower seeds and took good care of the garden. He watered it each day. In two weeks the flowers were up.

Recall Protocol: His flowers were bloomed in a couple of weeks.

(Subject 37) Oral Reading

B2 Case Related Information includes the addition of permissible sequences that are assumed extensions of information in the passage.

Text: One summer day while Tommy was eating breakfast a chipmunk came to the window.

Recall Protocol: Tommy was eatin' breakfast and he saw a chipmunk on the windowsill.

(Subject 39) Oral Reading

- B3 Local Summary—The consolidation of several units into a superordinate unit.

Text: John was excited when he arrived at the station. He rushed through the revolving door at the entrance. The door jarred his heel and he stumbled bumping his forehead. The coins flew across the floor. He rushed to pick them up.

Recall Protocol: When he got to the studio, he got his heel stuck in the door and he stumbled and bumped he forehead and his coins fell all over the floor.

(Subject 28) Silent Reading

- B4 Predicate Expansion—The semantic parsing of a text specific predicate into two or more terms.

(No recall protocols occurred in this category.)

- B5 Argument/Attribute Expansion—The expression of a complex term as a simple sentence.

(No recall protocols occurred in this category.)

- C. Text Experiential—Units of information in recall which include elements of the text but these elements are combined with experiential information that comprises more than half the information in the unit.

- C1 Experiential Intrusions—Recall elicited by elements of the text for which there is not specific text unit.

Text: The chipmunk looked in the window and then jumped to the ground. Quickly Tommy got a can of water and some peanuts.

Recall Protocol: The chipmunk looked in through the window and Tommy seen him. Then his mother said, "Tommy go after the chipmunk."

(Subject 09) Oral Reading

- D. Text Erroneous—Units of information in recall which involve faulty inferences or generalizations and unacceptable substitutions which have no specific relationship to the text.

- D1 Faulty Inference—Two separate units are joined together in ways that are inconsistent with the context.

Text: The noise stopped and everything became still. Finally Prince returned. Bob felt better having company.

Recall Protocol: Suddenly they heard something . . . And his dog Prince went down there. After he got glad cause his aunt came.

(Subject 18) Silent Reading

- D2 Erroneous Expansions—Argument/attribute phrases are separated into simple sentences that are conceptually wrong. It describes ambiguous text information. (No recall protocols occurred in this category.)

- D3 Errors in Dates and Proper Names (due to memory)

Text: Joe wanted to make a garden.

Recall Protocol: Jimmy wanted a garden.

(Subject 32) Oral Reading

D4 Unacceptable Substitutions—Items in the protocol units do not have the same conceptual referent as in the text and subsequently the conceptual referent is wrong.

Text: John had won second prize in the Jackson School hobby show for his coin collection.

Recall Protocol: There was a hobby shop and John won second prize for his coin collection.

(Subject 23) Silent Reading

E. Text External—Units of information in recall which include elements of the text but which are embedded in other information that is so general it does not convey any specific information such as false starts, repetitions, and story telling conventions.

E1 Generalizations—Information which has no specific text referents and has no explicit relationship with the text.

Text: He saw a soldier on horseback and took his picture.
He took another of a policeman near the traffic light.

Recall Protocol: He took a picture of a soldier, a policeman and maybe many other things.

(Subject 14) Oral Reading

E2 Story Telling Conventions—Statements that relate to the task.

Recall Protocol: That's all I can remember.

(Subject 21) Silent Reading

APPENDIX D

EXAMPLES OF ANALYZED RECALL PROTOCOL CATEGORIES

A Gift*

Henry was delighted when his parents gave him a camera. He darted out of the house immediately and looked for something to take a picture.

He saw a soldier on horseback and took his picture. He took another of a policeman near the traffic light. He was so excited and so interested that he forgot it was lunch time.

Henry was hungry so he hurried home. When he got there his father and mother howled with laughter. They told Henry there was no film in the camera. Henry felt foolish.

E A A
/I can remember / that his mother (/and father/) gave him a
B B B A
(/new/) camera / and he took picture / of a soldier / a policeman /
E A A
(ah) and maybe some other things./ He forgot / that it was
A A A
(/lunch/) time / and then he got hungry / and then he hurried home /
B A A B
for lunch / and his mother (/and father/) laughed / because there
A A
was (/no/) film in the camera / and Henry felt foolish./

Oral Reading - Subject 21

Basic Structures: 19

Recall Categories

A - Text Specific	A - 12
B - Text Entailed	B - 5
C - Text Experiential	E - 2
D - Text Erroneous	
E - Text External	

*McCracken, 1966, Form A, p. 10.

Tommy*

It was a bright summer day and Grandmother was in the kitchen. She called and asked Tonny to go to the grocery store in the village.

Grandmother needed some flour to bake some bread. She gave Tommy some money and ten cents for candy.

On the way Tommy found a turtle. Tommy caught the turtle and put it in his cap. He played with the turtle ten minutes. Tommy forgot what he was to get for Grandmother.

D

/Tommy had to go to the store for his mother / and (ah)

A A B
grandmother needed (/some/) flour / and he forgot (da and forgot)

da flour / and he forgot / to go to the store for his grandmother.

Silent Reading - Subject 13

Basic Structures: 6

Recall Categories

A - Text Specific	A - 3
B - Text Entailed	B - 1
C - Text Experiential	D - 2
D - Text Erroneous	
E - Text External	

*McCracken, 1966, Form B, p. 26.

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